Colorado Department of Health

Hazardous Materials & Waste Management Division

Comments

on

DRAFT

PHASE I RFI/RI WORK PLAN

FOR

OU-15

(Inside Building Closures)

ROCKY FLATS PLANT

May, 1992

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Executive Summary: The first paragraph on page ES-2 should be restated to reflect recent clarifications by the Division and EPA on the status of IHSS 212 (Unit 63) and IHSS 215. The following wording is suggested:

> IHSSs 212 and 215 were originally included in the IAG as inside building closures in OU-15. IHSS 212 (RCRA Unit 63) is an interim status drum storage area that was included in the 1988 RCRA Part B TRU Mixed Waste Permit Application. At that time, it was intended that Unit 63 be closed under RCRA and reopened as a laboratory. Since then, DOE has decided to continue using the unit for container storage. Unit 63 will be removed from the OU-15 schedules of the IAG and will not be addressed in this Work Plan. The unit was submitted in the Mixed Residues permit modification. Part VIII of the permit will include closure plans for Unit 63, which will specifically address radioactive contamination and cleanup. IHSS 215 is an out-of-service tank (Tank T-40), which has already been included in the Phase I RFI/RI for OU-9 (Original Process Waste Lines). It was moved from OU-15 to OU-9 in a Modification to Work of the IAG dated April 21, 1992.

Section 1.3.3.3: At the end of the final sentence of the second paragraph of page 1-11, confirm that "stability", rather than instability, is the correct term.

Section 1.3.3.7: Compare the use of the term "conformably" to describe the Arapahoe-Laramie contact with Figure 4-2 of the Phase II Geologic Characterization Data Acquisition (EG&E, 1992) which shows an unconformable contact.

Figure 1-5: Contacts between Rocky Flats Alluvium and the Arapahoe Formation, and between the Arapahoe Formation and the Laramie Formation are shown as straight lines (conformable) in the "Formation" column of the Stratigraphic Section. Compare this with Figure 4-2 of the Phase II Geologic Characterization Data Acquisition (EG&G, 1992).

Section 2.2.6: At the end of the first paragraph on page 2-13 the drain and waste lines for the cyanide treatment process are mentioned. These lines are not covered in this OU or in OU-9, but apparently are covered by UBC-881, a Potential Area of Concern that deals with possible contamination under Building 881. Please confirm that these waste lines are included in this UBC.

Section 2.3.2.2: First paragraph on page 2-22. See comments for Section 1.3.3.7 above.

Section 2.5: Under Release Mechanisms on page 2-29, secondary release mechanisms are described as releasing "contaminants from environmental media." This contradicts the description in Section 2.5.2 and the Conceptual Model Flow Chart (Figure 2-6) which describe secondary release mechanisms as acting within buildings.

Section 2.5.1.2: Eliminate the words "with cyanide" from the end of the final sentence in the first paragraph of page 2-32.

Section 2.5.3: The second sentence should be revised to explain that potential human receptors can be limited to RFP workers and visitors for consideration of radionuclide exposure. If RCRA hazardous wastes are not detected within the units, then other receptors do not need to be considered. Since no biota are "indigenous to the OU15 environs", eliminate the third sentence and "however" at the beginning of the next sentence.

Figures 2-3 and 2-4: Roads, streams, fences, and buildings are all shown in blue. These maps would be clearer if, as a minimum, the buildings were outlined in black as indicated in the legends.

Figure 2-6: Revise the flow chart to more clearly show the conceptual model described in the text:

1. Identifying the two columns under "Release Mechanisms" as "Primary" and "Secondary" would add clarification.
2. Routing contamination from impacted environmental media back into inside-building pathways is misleading. It may be more appropriate to show a route from the various transport media to the secondary release mechanisms indicating that after transportation, contaminants could be re-released by

those mechanisms.

3. The second paragraph on page 2-33 describes "suspension and/or dissolution in water" as a secondary release mechanism for the Original Uranium Chip Roaster. This mechanism should therefore be added to the flow chart.

4. In section 8.1 on page 8.2, building materials are identified as a "relevant medium." The release mechanism which would likely deliver contaminants into building materials is probably more accurately termed "percolation" rather than "leaching." Once the building materials are contaminated, they would then serve as a secondary source. A "Building Materials" box should therefore be added in the source column under the heading of "Secondary Source." The release mechanism from building materials is "Leaching." From that point, contaminants could be released by the various secondary release mechanisms, transported primarily via water/liquid waste.

An accompanying revised diagram demonstrates these suggested changes.

Section 3.0: Benchmarks will not apply to OU-15. Because this OU involves RCRA closure units, the clean closure standard will be implemented. The following wording is suggested:

> "The IHSSs in OU-15 are RCRA closure units for which clean-closure is anticipated. Therefore, the Clean Closure Performance Standard (Section 265.111 of CHWA) will serve as the Applicable or Relevant and Appropriate Requirement (ARAR) and will be applied during this RFI/RI and any subsequent remedial cleanup. Although this standard is health-based, it is typically applied through decontamination and/or removal of any detectable hazardous waste constituents."

In addition, occupational radiation standards will be applied as ARARs. Guidance on potential ARARs for the remediation of radioactively contaminated sites under CERCLA is available in the *CERCLA Compliance with Other Laws Manual* (EPA, 1989). A discussion of the application of these occupational radiation standards plus a table listing potential ARARs derived from them should be included in Section 3. The remainder of Section 3 as it is presently written, including the Benchmark tables, can be deleted.

Section 4.1.3: The location of the conceptual model mentioned in the first sentence should be Section 2.5. The final sentence states that a discussion of the site-specific conceptual model follows. Please identify where this discussion is located.

Section 4.1.4: On page 4-6, item (1) under Describe Contaminant Fate and Transport, which concerns secondary containment systems, appears to be redundant with respect to item (2) under Characterize Site Physical Features. This list is repeated in Section 7.1.

Section 4.2.4: In reference to the last paragraph on page 4-10, the FSP must also generate "a sufficient amount of valid data" needed to statistically support a health-based risk assessment, if needed. Please verify that the amount and frequency of data are statistically justified.

Section 4.2.4: In the last paragraph on page 4-10, the phrase "a **staged** approach" is preferred to "a **phased** approached."

Section 4.2.5: Add a description of a staged sampling program (see comments for Section 7.0 below).

Section 4.2.5: Please mention what alternative sampling methods were considered.

Section 4.2.6: The referenced section in the first sentence of the first paragraph of page 4-12 should be Section 7.4.

Section 4.2.6: The final sentence of the first paragraph on page 4-12 should be revised to read, "The precision, accuracy, completeness, comparability, and representativeness parameters for all analytical levels are discussed below."

Section 4.2.6: In the third sentence of the third paragraph on page 4-12, the phrase "a **staged** approach" is preferred to "a **phased** approached."

Table 4-1: The final item in the "Data Use" column on page 1, "Environmental Evaluation", should be eliminated since a separate environmental evaluation will not be performed for OU-15.

Section 5.2: Since the final CRP has been released, the first paragraph of the section on page 5.2 should be revised as follows:

"In accordance with the IAG, the RFP **has developed...**"

"The CRP **addresses...**"

Section 5.3: The final sentence on page 5-3 refers to "activities described below...". Either change this phrase to "activities described above...", or identify specifically where this discussion is located.

Section 5.6: Revise the first paragraph of this section to reflect the effects of the comments for Section 8.0.

Section 5.9: On page 55 of Table 5 in the IAG Statement of Work, four specific items are listed as minimum information requirements for the OU-15 Phase I RFI/RI Report:

1. Characterize the nature, rate of transport and extent of contamination,
2. Define pathways and methods of migration,

3. Identify areas threatened by releases from the facility,
4. Determine short- and long-term threats to human health and the environment.

Where these required items are not addressed by the features listed in Section 5.9, please work them into or add them to that list.

Section 5.7.1: Step 6. on page 5-10 describes the development of risk-based remedial action goals. This paragraph should be reflect the clean closure standard as the remedial action goal as described in comments for Section 3.0 above.

Section 5-9: The last paragraph on page 5-15 mentions "a preliminary identification of potential contaminant migration routes..." Preliminary identification took place during preparation for this work plan. The field sampling plan is designed to identify potential contaminant migration routes beyond the "preliminary" level. The second paragraph on page 5-16 should mention that a Human Health Risk Assessment will be performed and be part of the RFI/RI report if radiation levels require it. In the last paragraph on page 5-16, use the phrase "in a technical memorandum" rather than "for Phase II of the RFI/RI."

Figure 6-1: The Task 2 time bar should be extended back to the left to indicate a start date of 05 May 92.

Section 7.0: The Field Sampling Plan needs to be reviewed to consider whether it fully satisfies the following questions:

1. Can it, together with the operating procedures being developed, serve as a field guide, providing clear and detailed instructions to those implementing it?
2. Will it supply the minimum information requirements listed in Table 5 of the IAG Statement of Work (see the comments for Section 5.9 above)? Does it "anticipate investigations beyond the work specified in [Table 5]" as stated in Section VI.B. of the SOW?
3. Does the sampling frequency, amount, types, and methods provide statistically significant figures that can be used in producing a Human Health Risk Assessment, if needed?
4. Is the data sufficient to satisfy closure requirements?

Section 7.1: See comments for Section 4.1.4 above.

Section 7.2: Efforts to locate information about past attempts to clean the IHSS sites should be required in the first paragraph on page 7-4. Such knowledge could be crucial to the sampling plan.

Section 7.2: As noted in the comments for Section 7.3.3 below, a contingency for minor destructive sampling needs to be included in the FSP. The second sentence of the second paragraph on page 7-4 should be rewritten to allow for this contingency.

Section 7.2: Under Sampling Strategy and Rationale on pages 7-6 and 7-7, a staged approach to the FSP is described which divides the identified tasks into three separate steps. The text should make clear that the results of Steps 1 and 2 will help to determine parameters for the subsequent step. This same process should be used within Step 3 so that there is a contingency for additional sampling (sub-steps) from "critical locations" (Section 4.2.5, page 4-13). For example, more sample sites could be added if contamination is identified beyond the IHSS boundaries. "Statistical summary techniques that consider spatial and temporal data distributions" (Section 8.2.2, page 8-7) can be applied to identify additional sampling needs. The need for additional sampling should be proposed in a technical memorandum. It might be appropriate to add a description of this staged approach to Section 4.2.5 as mentioned above.

Section 7.3: This section includes "frequency" in its title, but the number of samples is never addressed. It would be useful to add an estimate of how many samples of each type will be generated by the FSP according to the frequencies specified. These figures could be added to the text or included in Figure 7-2.

Section 7.3.1: "Personal communications with plant operators" is mentioned in the second paragraph on page 7-4 as a source of background data. Personal communication with plant workers might also be considered as a source of additional waste stream identification and characterization information during the RFI/RI.

Section 7.3.2: The first four sentences of the second paragraph on page 7-11 seem appropriate for this section (Step 2 activities). The remainder of this paragraph would more appropriately be placed under Wipe Sampling in Section 7.3.3 (Step 3 activities).

Section 7.3.2: The first paragraph on page 7-12 mentions "applicable DCNs". The preferred and more efficient method for submitting changes or additions to operating procedures that are specific to this OU is by means of operating procedure addenda in Section 11.

Section 7.3.2: The statement on page 7-12 that sampling beyond IHSS boundaries will occur only if "readings above background are detected near the existing boundary of the IHSSs" is too limiting. Potential contaminant pathways have been identified in this work plan and are supposed to be further evaluated during the Phase I RFI/RI field investigation (see item (2) under Describe Contaminant Fate and Transport on pages 4-6 and 7-3, and Step 2 on page 7-7). As discussed at scoping meetings (4/15/92 and 4/20/92), these efforts to identify contaminant pathways should be followed up with a sampling program that targets potentially contaminated areas beyond the IHSS boundaries (e.g., the sump near IHSS 179). A minimum number of initial sampling sites should be identified for the Final Work Plan. The number and locations can be adjusted

according to results of the screening activities in a staged approach as described in the comments to Section 7.2 above. Environmental sampling outside buildings may also be required if sample analyses indicate that contamination has travelled "out the door." Off-site contamination will be included as part of remedial action for a unit if it can be shown to come from the unit.

Section 7.3.3: Noticeably absent from any sampling plans are activities designed to test for contaminants which may have seeped into building materials as described in the conceptual model (Section 2.5.2) and as mentioned under the Human Health Risk Assessment (Section 8.1, page 8-2). A contingency for destructive sampling of building materials (paint/cement chips, coring, etc.) could be added as a sub-stage of Step 3 if contamination is found along pathways likely to allow for leaching to occur. Particular attention should be paid to cracked concrete found during visual inspections.

Section 7.3.3: As mentioned in the Scoping Meeting on 4/20/92, analysis of the drummed waste is not required. If drum sampling is desired, then procedures beginning on page 7-13 should be formalized as EMD Operating Procedures before implementation of the work plan begins. References should be made in this section to the exact locations of these procedures once they are developed.

Section 7.3.3: Wipe sampling procedures on page 7-16 should also be formalized as EMD Operating Procedures before field sampling begins. The first paragraph on page 7-17 mentions that "separate wipe samples will be obtained and analyzed for beryllium." Explain the procedure for obtaining multiple wipe samples from the same surface, either in this paragraph or in the EMD Operating Procedures.

Section 7.3.3: Reference the specific location of the wipe sampling procedures for soot once they are developed. As explained in comments for Section 7.3.2 above, an operating procedure addendum is preferred to a DCN for submitting changes or additions to operating procedures if they are specific to this OU.

Section 7.6: In the second paragraph of this section on page 7-22, describe in detail the procedure for collecting duplicate wipe samples from the same surface, if this procedure is not already covered in the operating procedures being developed.

Section 7.7: Development of Operating Procedures for air quality monitoring must be completed. Add a reference to their specific location in this section.

Section 8.0: As explained in the comments for Section 3.0, the RCRA closure standard that will be applied at OU-15 is risk-based. Since the OU-15 IHSSs are inside buildings, however, it will probably not be necessary to use a risk-based approach. It is,

therefore, unnecessary to perform a Human Health Risk Assessment for RCRA hazardous wastes. If radionuclide contamination is detected at levels exceeding the occupation radiation standards identified in Section 3.0, then a radiation-based risk assessment must be completed.

This entire section must be rewritten to describe the contingency of performing a radiation-based risk assessment rather than a health-based risk assessment for RCRA hazardous waste. This risk assessment will assume RFP workers and visitors as the only potential receptors, as described in Section 2.5.3. References to "fish ingestion and exposures resulting from recreational uses of reservoirs", ground water, surface water, and all other outside-building exposure routes should be eliminated throughout this section. In its August 6, 1992 letter to DOE, the division proposed one comprehensive phase rather than dividing the project into Phase I and II efforts. Therefore, eliminate references to Phase I and II in this section. Other specific comments follow.

Section 8.1: Restate the third and fourth sentences of the second paragraph on page 8-4 to explain that if the clean closure standard is met and radionuclide contamination is below occupational radiation standard thresholds, then a Human Health Risk Assessment will not be performed. In the sixth sentence of the same paragraph, eliminate "soil", so that general exposure pathways are described. The eighth sentence should be modified to explain that the identification of these pathways will occur only if contamination is discovered. In the final sentence, the phrase, "during Phase II" should be replaced with "by additional sampling proposed in a technical memorandum." See the comments for Section 7.2 above.

Section 8.1: Explain what is meant by **partial** Human Health Risk Assessment.

Section 8.2: Section VII.D.1.a of the SOW requires that "a technical memorandum listing the hazardous substances present at each site or OU" be "submitted prior to the required submittal of the Baseline Risk Assessment." Section VIII allows this memorandum to be combined with the other risk assessment components into one consolidated technical memorandum. State somewhere in this section that this requirement will be complied with if contamination is encountered.

Section 8.2.2: Please explain the meaning of the first sentence of the second paragraph on page 8-7 which begins, "Following completion of the Phase I RFI/RI data collection, analysis, and validation...."

Section 8.2.2: Since any contaminants found within buildings are necessarily related to the RFP, eliminate the phrases "or if they are unrelated to the RFP," and "and they appear related to the RFP"

from the second and third sentences of the last paragraph on page 8-7. In this same paragraph, at the top of page 8-8, confirm that "unlikely" rather than "likely" (or "cannot" rather than "can") provides the proper meaning.

Section 8.2.3: Rewrite this section deleting those portions that no longer apply due to the comments concerning ARARs in Section 3.0.

Section 8.3: The last paragraph in this section, on page 8-13, discusses general exposure pathways, then specifically addresses external exposure to radionuclides. Explain what is meant by this exposure route and why it is singled out in this paragraph.

Section 8.3.1: In the fourth sentence of this section, on page 8-13, residential exposure pathways can be deleted from discussion. In Section 2.5.3, all receptors other than RFP workers and visitors were eliminated from the site conceptual model.

Section 8.3.2: The fate and transport mechanisms described in the second sentence of the last paragraph on page 8-14 do not fit the inside-building scenarios described in the site conceptual model. This sentence should be rewritten or eliminated.

Section 8.3.4: The final sentence should be eliminated or modified to explain that the only future use considered by the Human Health Risk Assessment will be industrial/occupational.

Section 8.3.5: Contrary to the last sentence of the first paragraph in this section, the Work Plan described in Section 7.0 emphasizes sampling at the source rather than at any other potential exposure points. As described in the comments for Section 7.3.2 above, contaminant pathways beyond the IHSS boundaries need to be sampled and assessed as well.

Section 8.3.6: It is suggested that the last two paragraphs of this section (bottom of page 8-19 and top page 8-20) be deleted. As explained above, all receptors other than RFP workers and visitors have been eliminated from the site conceptual model.

Section 8.4: Section VII.D.1.c of the SOW requires that "a technical memorandum listing the hazardous substances present at each site or OU" be "submitted prior to the required submittal of the Baseline Risk Assessment." Section VIII allows this memorandum to be combined with the other risk assessment components into one consolidated technical memorandum. State somewhere in this section that this requirement will be complied with, if contamination is encountered.

Section 10.3.2: Table 4-2 mentioned at the end of the second paragraph on page 10-5, does not exist in this work plan.

Section 10.3.6: Justify the statement in this section with Section

7.7 which states that although local monitoring of Respirable Suspended Particles will not be required, "air monitoring will be performed during field activities to ensure that any ongoing building operations or activities do not adversely affect the quality of data obtained during sampling.

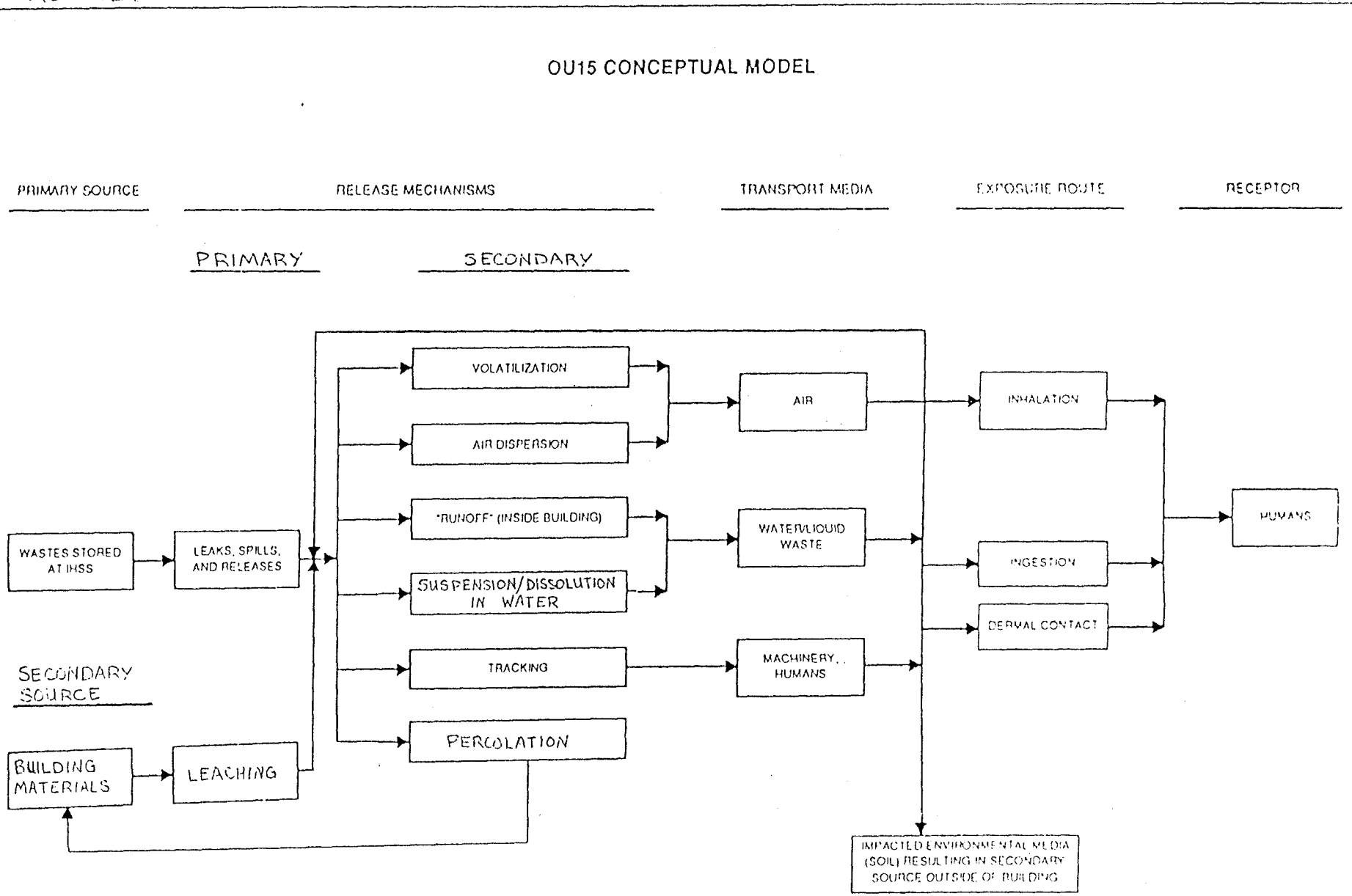
Section 10.5: Please note the following clarifications to the final paragraph in this section on page 10-13:

1. Changes and variances to approved operating procedures are submitted through DCNs, or operating procedure addenda if the changes are specific to OU-15.
2. Changes to the OU-15 work plan should be proposed in Technical Memoranda.

Section 11.0: Operating procedure addenda, if applicable, must be included in the final RFI/RI Work Plan.

REVISED

OU15 CONCEPTUAL MODEL



Conceptual Model Flow Chart for Inside Building Exposure Pathway – OU15, Rocky Flats Plant

Figure 2-6

M53\DES\Concept Model OU15 mdw4-30